

Purpose of the Study

- An illustrative case study design (Yin, 2018) grounded by transformational leadership theory examined the ways in which engineering postdoctoral scholars described the type of advisement they received during their appointment and its influence on their career decision-making process

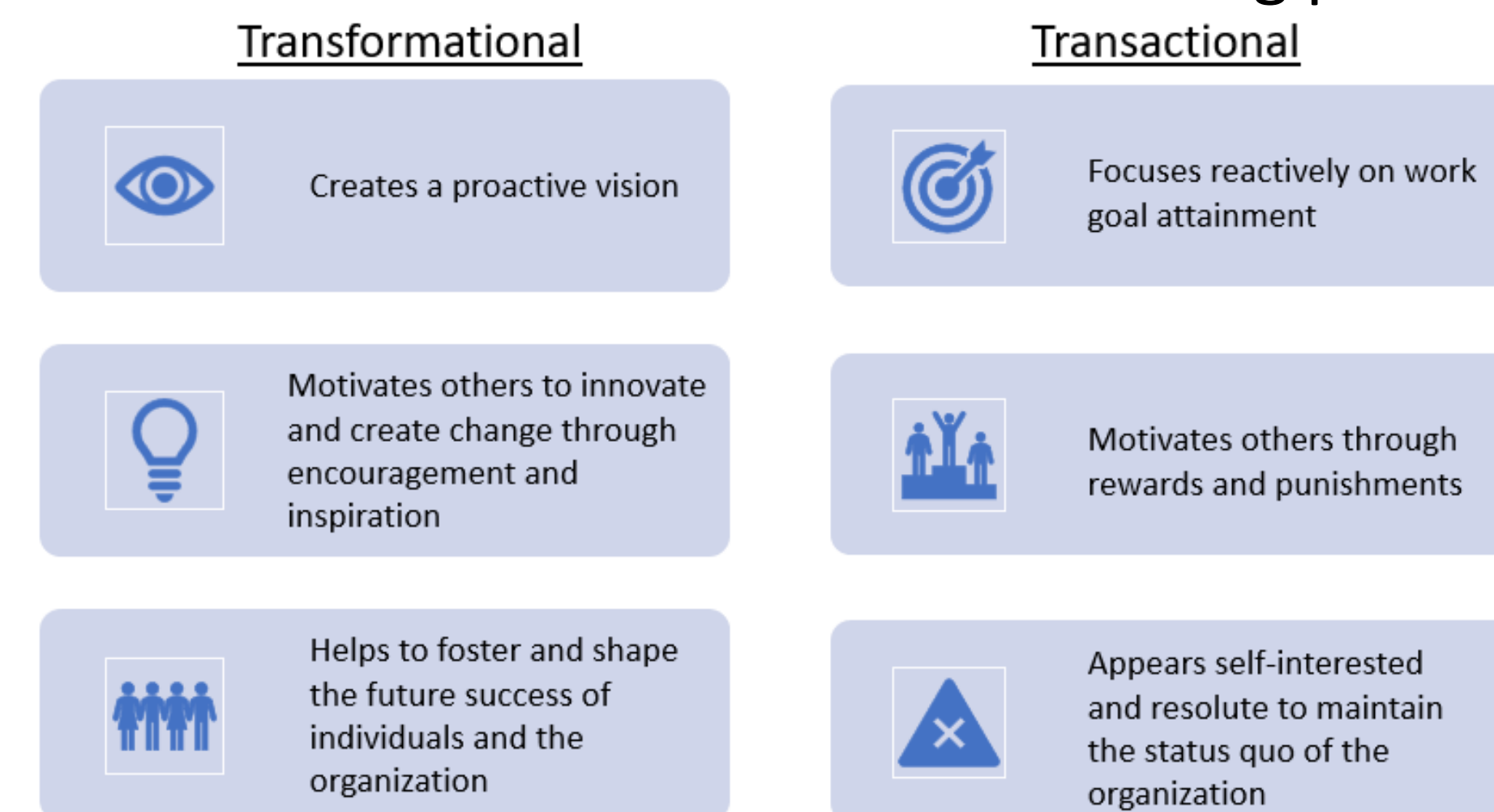


Figure 1.
Advisement Styles
(Burns, 1978)

- Given that advisors are directly responsible for much of the satisfaction postdoctoral scholars derive from their appointments, the academy must consider the ways in which postdoctoral scholars describe their advisor-advisee relationship and its subsequent influence on their career decision-making process

Research Questions

- How do engineering postdoctoral scholars describe the type of advisement they receive during their postdoctoral appointment?
- How do postdoctoral advisors influence career decision-making?

Related Literature

- Postdoctoral training is crucial for a researcher's ability to compete for academic appointments (Andalib et al., 2018) and the advisor relationship can play an intricate role in one's postdoctoral experience and career decision-making process (Clement et al., 2020)
- Ven Benthem et al. (2020) report three contributing factors related to postdoctoral scholar satisfaction: quality of technical training, encouragement from advisors, and prior knowledge of career prospects

Participants

- 22 engineering postdoctoral scholars
 - 7 female, 14 male, and 1 non-binary participant
 - 3 identified as African American, 6 as Asian American, 3 as Latinx, and 10 as White
 - Ages ranged from 29-43 with an average age of 33

Data Analysis

- Stake's (1995) four-step deductive data analysis process of direct interpretation, categorical aggregation, pattern recognition, and naturalistic generalizations was utilized
- Multiple verification strategies were employed to ensure trustworthiness of the findings
- Two themes emerged:
 - Transformational advisors serve as mentors and play a prominent role in the career decision-making process of postdoctoral scholars—they influence one's ideal lab environment, foster networking opportunities, and encourage individual growth
 - Transactional advisors show little to no interest in the career decision-making process of postdoctoral scholars—often leaving them feeling uncared for and that their value lies squarely in their research contributions



Findings: Transformational vs. Transactional Advisors

Theme 1: Transformational Advisement

"My primary postdoc supervisor sat all of the postdocs down the first semester and said, 'What do you want to do after you're done here and what can I do to help you get there?' And so he worked with me through all my application materials and figured out what questions to ask in interviews to gauge if it was going to be a good fit for me, and so he was really instrumental." ~Latinx female postdoc

"At the beginning, I didn't put too much attention in deeply analyzing the results I obtained. Then my advisor criticized that. He told me, okay you obtained results, but you didn't pay enough attention to the analysis of why . . . This situation allowed me to learn and to improve and pushed me to improve as a researcher." ~Latinx male postdoc

Theme 2: Transactional Advisement

"There was a lack of support from my advisor . . . when I asked, what is the career pathway after this? He was like, oh, you need to figure that out for yourself, what you like, what you don't like. This is true, but there was a lack of support. I didn't like that." ~Asian American male postdoc

"[Postdoctoral advisors] are thinking about themselves, they're thinking about their project, and they just want to move on to make progress in that. And sometimes I feel they don't care what you're doing or feeling. I mean, as long as someone is moving on . . . making progress for research, that is all they're looking for." ~ White male postdoc

Conclusions

- Postdoctoral advisors play a critical, and even intimate, role in the way in which postdoctoral scholars describe their postdoctoral satisfaction and subsequent career trajectories
- Transformational advisors act as mentors, they establish expectations from the start, facilitate clear communication channels, foster research independence, model reflective behaviors, and create inclusive environments
- Keys to successful advisor-advisee relationships lie in co-constructing individualized development plans and engaging with institutional postdoctoral offices to ensure appropriate and adequate support through the postdoctoral experience, these efforts can facilitate a positive, fruitful, and productive relationship for all parties



Contact:

Sylvia L. Mendez, PhD
University of Colorado Colorado Springs
719-255-3476
smendez@uccs.edu

UCCS IRB Protocol Number: 18-087

Funding Source: This research is sponsored by the National Science Foundation (NSF) Alliances for Graduate Education and the Professoriate (AGEP; award number 1821008). Any opinions, findings, conclusions, or recommendations are those of only the authors and do not necessarily reflect the views of the NSF.

References:

Andalib, M. A., Ghaffarzadegan, N., & Larson, R. C. (2018). The postdoc queue: A labour force in waiting. *Systems Research and Behavioral Science*, 35(6), 327-348; Burns, J. M. (1978). *Leadership*. Harper & Row; Clement, L., Leung, K. N., Lewis, J. B., & Saul, N. M. (2020). The supervisory role of life science research faculty: The missing link to diversifying the academic workforce? *Journal of Microbiology & Biology Education*, 21(1), 1-13; Stake, R. E. (1995). *The art of case study research*. Sage Publications; Van Benthem, K., Mohaman, N. A., Corkery, C. T, Inoue, J., & Jadavji, N. M. (2020). The changing postdoc and key predictors of satisfaction with professional training. *Studies in Graduate and Postdoctoral Education*, 11(1), 123-142; Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.